Air Quality Presentation for the Statewide BLM Colorado Resource Advisory Council

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APCD's Regulation of Oil and Gas

- The Air Pollution Control Division (APCD) is responsible for oversight and permitting of Federal and State Air Quality Rules.
  - **State Air Quality Rules**
    - AQCC Rule 1 - Opacity (e.g. smoke and fugitive dust)
    - AQCC Regulation 2 - Odor
    - AQCC Regulation 3 - State permitting Requirements
    - AQCC Regulation 6 – New Source Performance Standards
    - AQCC Regulation 7 – Ozone Precursor Control
    - AQCC Regulation 8 – Maximum Achievable Control Technology (MACT) Standards

APCD's Regulation of Oil and Gas

Federal Rules

New Source Performance Standards (NSPS) 40 CFR Part 60

- NSPS Kb – Storage tanks
- NSPS GG – Gas turbines
- NSPS KKK – Fugitive Volatile Organic Compound emissions) (under revision)
- NSPS LLL – Amine and sulfur recovery units) (under revision)
- NSPS IIII – Compression ignition engines
- NSPS JJJJ – Spark ignition engines
- NSPS KKKK – Combustion turbines
- NSPS OOOO – Oil and Gas (proposed)
- NSPS Dc – Small boilers

Maximum Achievable Control Technology (MACT) 40 CFR Part 63

- MACT HH – Oil and natural gas production facilities (tanks, compressors, and ancillary equipment) (under revision)
- MACT HHH – Natural gas transmission and storage facilities (dehydrators)) (under revision)
- MACT YYYY – Combustion turbines
- MACT ZZZZ – Reciprocating engines
- MACT DDDDD – Boilers and process heaters
- MACT GGGGG – Site remediation requirements

Emissions from Oil & Gas Production

Oil and gas facilities are industrial facilities and as such are regulated by the APCD if they have the potential to emit pollutants at certain levels.

Air Pollutant Emission Notice (APEN)

- APEN required for emissions of air pollutants from construction, modification or alteration of any facility from which air pollutants are emitted at $\geq$ 2 tpy of VOC emissions. (11.8 lb/bbl emission factor)
- APEN information includes:
  - Description of emission point
  - Fuel types and consumption rates
  - Requested process rates
  - Emission estimates
- Renew every 5 years unless major modification occurs

APCD Permit

A permit is required for facilities that have the potential to emit 5 tpy VOCs. This document authorizes the legal emissions of air pollutants under certain terms and conditions.

- Defines what pollutants can be emitted and at what levels
- Identifies what steps a facility must take to reduce emissions
- Specifies how emissions must be measured and reported

APCD Inspections

- The APCD has 4.2 (going to 5) employees that conduct inspections throughout Colorado
- APCD conducted 336 inspections for 2010/2011 inspection period
- Ozone non-attainment area a priority

Monitoring Overview

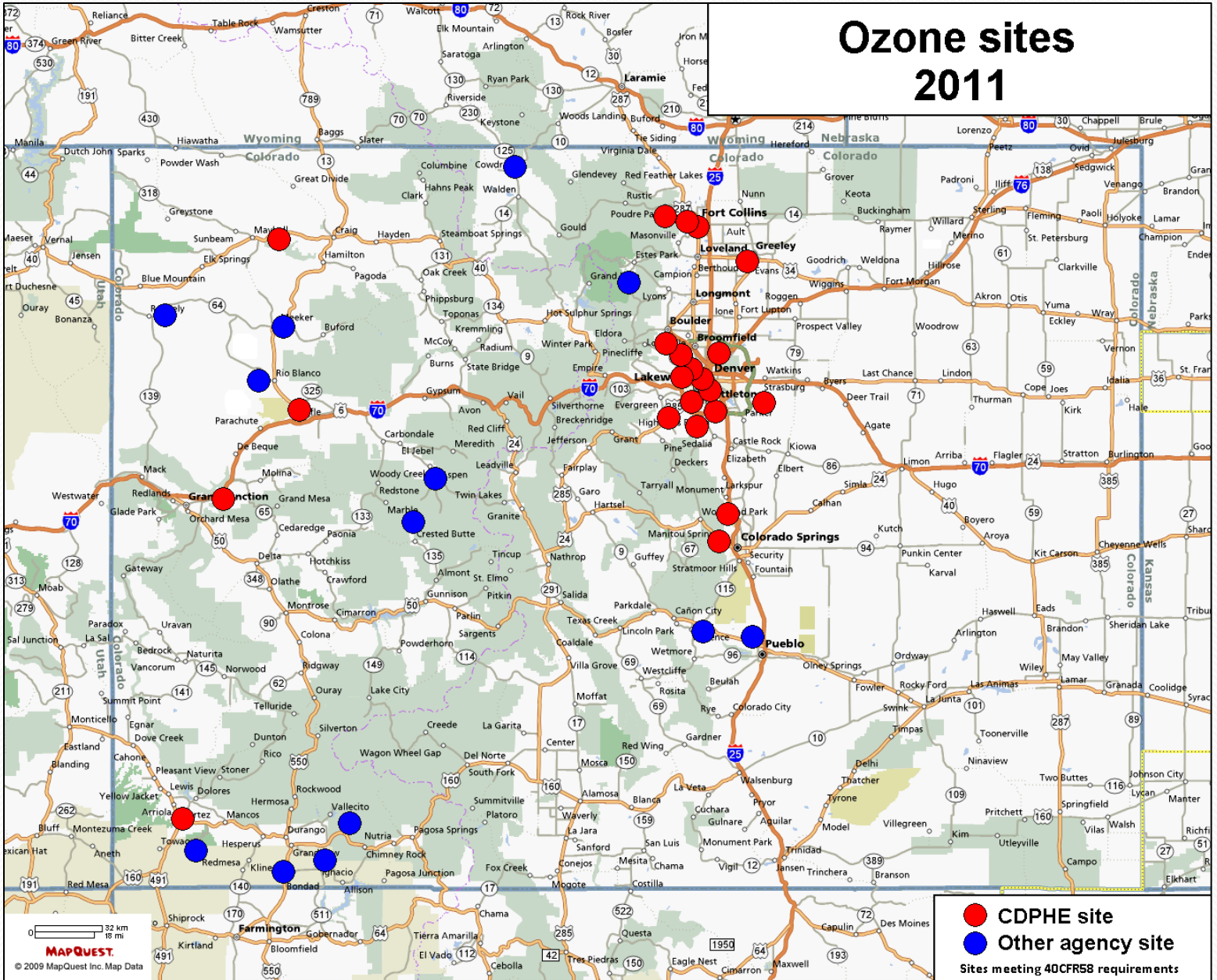
- Designed to protect public health
- EPA has 6 "Criteria" pollutants for National Ambient Air Quality Standards (NAAQS)
  - CO, O_3, NO_2, SO_2, PM (PM_{10} & $PM_{2.5}$), Pb
- Performed across State of Colorado
  - approximately 60 sites
  - Sites added or removed based on needs and concentrations recorded
- Mainly in population centers
- Different types
  - "Continuous" provides hourly values
    - CO, O_3, NO_x/NOy, SO_2, PM_{10}, $PM_{2.5}$, meteorology
  - "Daily" provides 24-hour values
    - PM_{10}, $PM_{2.5}$, air toxics

National Ambient Air Quality Standards

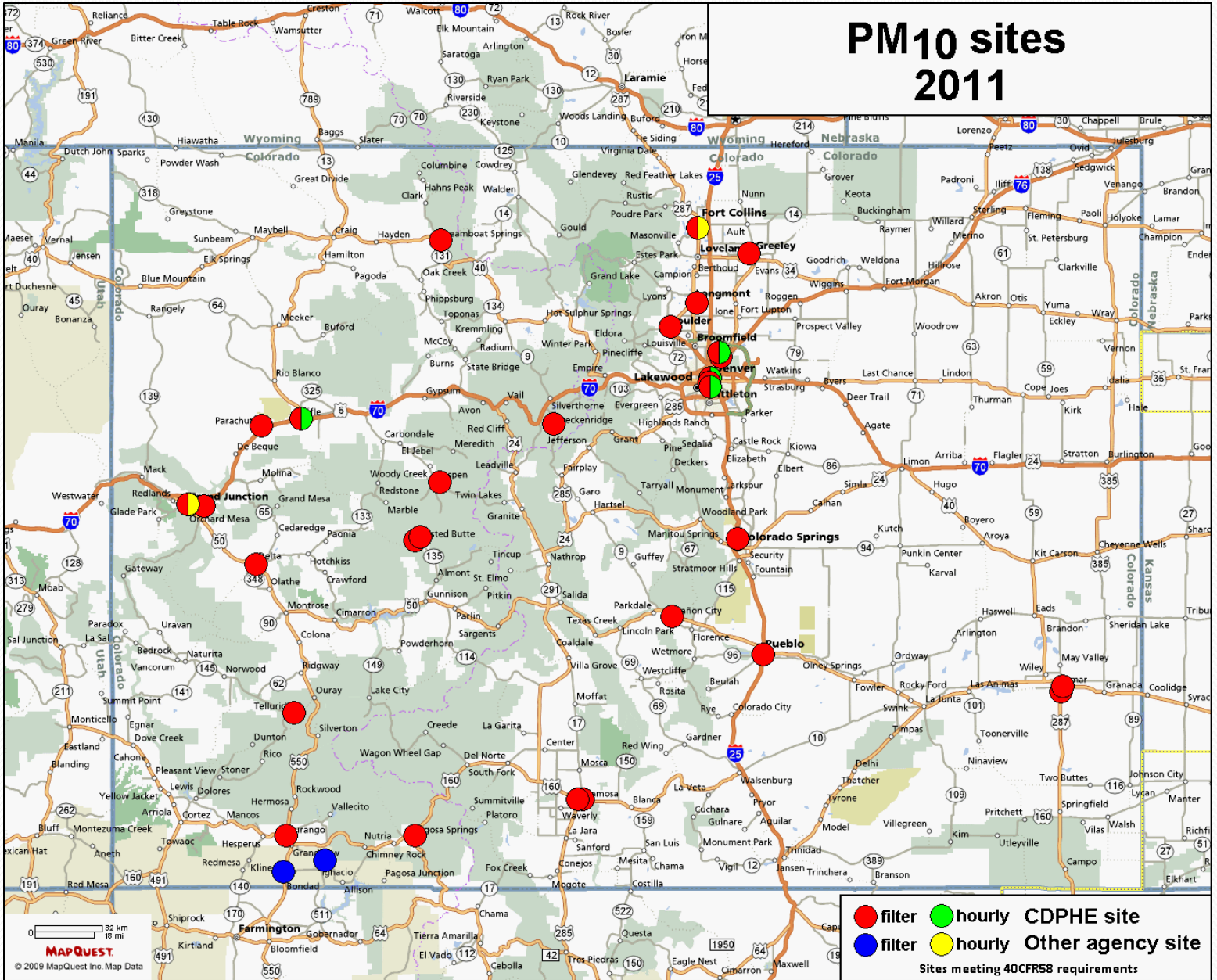
POLLUTANT	DATE EFFECTIVE Latest review/Original	AVERAGING PERIOD	STANDARD
Carbon Monoxide			
Primary Standard	8/31/2011 (4/30/1971)	1-Hour [a]	35 ppm
Primary Standard	8/31/2011 (4/30/1971)	8-Hour [a]	9 ppm
Nitrogen Dioxide			
Primary Standard	2/9/2010	1-hour [b]	100 ppb
Primary & Secondary Standard	10/8/2006 (4/30/1971)	Annual	53 ppb
Ozone			
Primary & Secondary Standard	3/27/2008	8-Hour [c]	0.075 ppm
Sulfur Dioxide			
Primary Standard	6/22/2010	1-Hour [d]	75 ppb
Secondary Standard	9/14/1973	3-Hour [a]	0.5 ppm
Particulates – PM_{10}			
Primary & Secondary Standard	10/17/2006 (7/1/1987)	24-Hour [e]	150 $\mu g/m^3$
Particulates – $PM_{2.5}$			
Primary & Secondary Standard	10/17/2006	24-Hour [b]	35 $\mu g/m^3$
Primary & Secondary Standard	10/17/2006 (7/18/1997)	Annual [f]	15 $\mu g/m^3$
Lead			
Primary & Secondary Standard	11/12/2008	3-Month rolling	0.15 $\mu g/m^3$

[a] Not to be exceeded more than once per year.
[b] As the 3-year average of the 98th percentile daily maximum value.
[c] As the 3-year average of the 4th highest daily maximum value.
[d] As the 3-year average of the 99th percentile daily maximum value.
[e] As the 3-year average of the expected number of exceedances, not to be greater than 1.0.
[f] As the 3-year average of the annual mean values (based on quarterly mean values).

Air Quality Monitoring Sites



Air Quality Monitoring Sites



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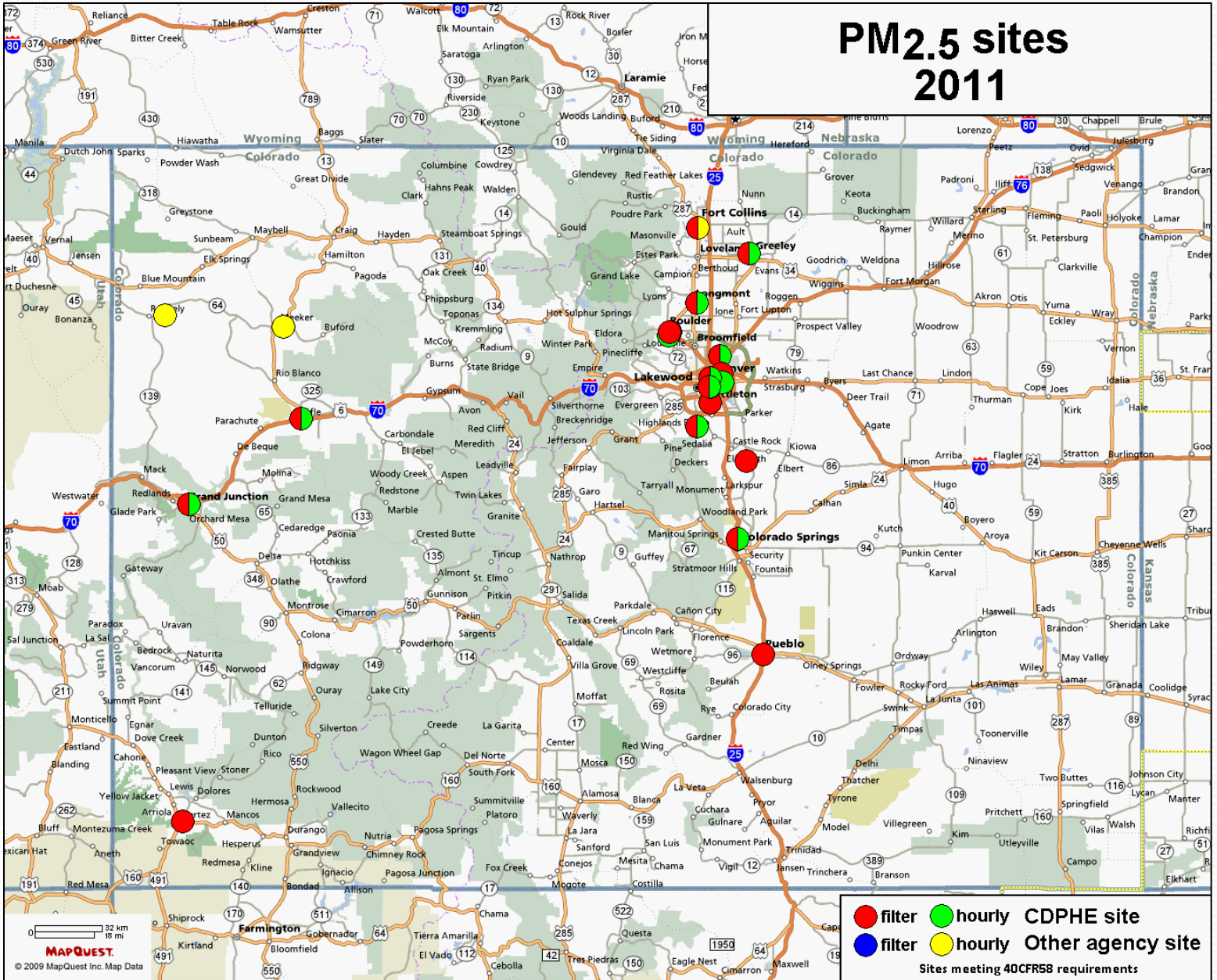

Monitoring Site Costs

- Cost for a monitoring site:
  - Shelter = $15,000 - $35,000
  - Analyzer = $9,000 - $32,000
  - Meteorological = $5,000 - $10,000
  - On-site QA equipment = $2,000 - $25,000
  - Data logging/communications = $10,000
  - Installation = $1,000 - $20,000
- Multi-pollutant site can cost $250,000 or more
- Operational:
  - Utilities
  - Filters/consumables/repairs
  - Data processing/QA/QC

APCD Data Availability

- "Continuous" data posted hourly on APCD Technical Services website and uploaded to EPA's AIRNow website
  - http://www.colorado.gov/airquality/
  - http://airnow.gov/
- "Non-continuous" filter-based data available in 1-2 months due to need for post-weighing
- All data uploaded to EPA's Air Quality System (AQS) after all QA/QC validation performed
- Forecasting performed daily and posted on APCD Technical Services website
- Annual Data Report published and on APCD website

Potential for Winter Ozone

- Winter ozone found in Uinta and Upper Green River Basins
- Little to no potential for Montrose and Delta Counties

- High winter ozone formed when:
  - High pressure system to west
  - Low winds
  - Topographic trapping/recirculation of air mass
    - *** not present in Montrose/Delta ***
  - Snow cover
  - Sunny days
  - Strong inversion / Mixing heights 100-400m
  - VOC and NOx sources/radicals
    - *** not enough present in Montrose/Delta ***
- Build-up over a number of days
- Flushes out with storm front

Issues for the Next Few Years

- Keeping up with the expansion of oil and gas development
  - APCD Permitting and Inspections
  - Complaints
    - Dust
    - Odor
    - Noise
    - Spills
    - Health concerns
  - Visibility issues particularly in Class I areas (primarily wilderness areas)

Issues for the Next Few Years

- Better understanding emissions from tank flashing and leaks from the production equipment.
- Expansion of oil and gas operations
- Ozone reduction
  - Regional Air Quality Council (RAQC) evaluating measures to reduce VOC's and NOx
  - RAQC work groups have looked at emission reduction from the transportation sector and stationary sources e.g., oil and gas industry, refineries, gasoline dispensing stations and boilers.

Issues for the Next Few Years

- Mercury emissions from coal fired power plants impacting our reservoirs.
  - Soon to be regulated under federal requirements
  - Mercury deposition has left many of our reservoirs with fish advisories.
- Fires are an increasing concern
  - Especially with all of the beetle kill
  - We continue to work with the Forest Service on prescribed fires, both broadcast burns and slash piles.

Questions?